Roy F. Weston, Inc
Suite 5700
700 5th Avenue
Seattle, Washington 98104-5057
206-521-7600 • Fax 206-521-7601

MEMORANDUM

DATE: 2 December 1998

TO: David Bennett, WAM, U.S. EPA, Region X

FROM: Michelle Turner, Chemist, WESTON, Seattle
RM Roger McGinnis, Senior Environmental Chemist, WESTON, Seattle

SUBJECT: Validation of Chlorinated Pesticide Data
Laboratory Batch: K9805485
Site: Duwamish River

WORK ASSIGNMENT NO: 46-23-0JZZ

WORK ORDER NO.: 4000-019-038-5200-00

DOC. CONTROL NO.: 4000-019-038-AAAK

cc: Bruce Woods, RAP-WAM, U S. EPA, Region X
Dena Hughes, Site Manager, WESTON, Seattle (memo only)
Kevin Mundell-Jackson, Database Management, WESTON, Seattle

The quality assurance review of one sediment sample, laboratory batch K9805485, collected from the Duwamish River has been completed. Samples were analyzed for chlorinated pesticides by Columbia Analytical Services of Kelso, Washington using EPA Method 8081. The samples were numbered:

98334057

Data Qualifications

The following comments refer to the laboratory performance in meeting the quality control criteria described in the technical specifications of the laboratory subcontract. The review follows the format described in the *National Functional Guidelines for Organic Data Review* (EPA OSWER Directive 9240 1-05, February 1994)

1. Timeliness

All samples met holding time criteria of 14 days for sample extraction and 40 additional days for extract analysis

2. GC/ECD Instrument Performance

i) Retention Time Windows

Retention times of all pesticides were within windows calculated from the initial calibration.

ii) DDT/Endrin Breakdown

The percent breakdown for 4,4'-DDT and Endrin was less than 20 percent for each compound and combined breakdown was less than 30 percent on both GC columns.

3. Initial Calibration

a) Individual Standard Mixtures

Retention time windows were calculated correctly.

Appropriate standards concentrations were used and peak heights of 50 to 100 percent of full scale were obtained.

Calibration factor percent relative standard deviation (%RSD) met QC criteria of 20 percent for pesticides and 30 percent for surrogates.

4. Calibration Verification

Instrument blanks and PEM samples were analyzed at the proper frequency.

The difference between actual and calculated concentrations of individual pesticides was within QC criteria of ±25 percent.

5 Detection Limits

Instrument detection limits met project required quantitation limits with the following exceptions:

Sample	Compound	QL Goal (µg/Kg)	Reported QL (µg/Kg)
98334057	DDE	1	2
98334057	Endrin	2	3
98334057	Endosulfan II	2	3

Where quantitation limit goals were exceeded, undetected analytes were qualified (UI) to indicate matrix interference.

6 Blanks

a) Laboratory Method Blanks

Laboratory method blank frequency criteria were met.

No target analytes were reported in laboratory method blanks.

b) Field Blanks

No field blanks were associated with this laboratory batch.

7. System Monitoring Compounds (Surrogates)

Surrogate compound percent recovery met quality control criteria for all samples

8. Matrix Spike and Matrix Spike Duplicate

Matrix spike (MS) or matrix spike duplicate (MSD) percent recovery for the following compounds were outside QC guidelines (P-project, L-laboratory)

Sample	Compound	Percent Recovery	QC Limits
K9805457-001MS (Batch QC)	gamma-BHC (Lindane)	40	46-127 (P) 20-141 (L)
K9805457-001MS (Batch QC)	Dieldrin	not calc	31-134 (P) 20-183 (L)
K9805457-001DMS (Batch QC)	gamma-BHC (Lindane)	40	46-127 (P) 20-141 (L)
K9805457-001DMS (Batch QC)	Dieldrin	not calc	31-134 (P) 20-183 (L)
K9805457-001DMS (Batch QC)	Endrin	40	42-139 (P) 20-164 (L)

Relative percent difference (RPD) values between the matrix spike and matrix spike duplicate met project QC goals. The MS and MSD were batch QC and not necessarily representative of this SDG. MS and MSD results were not calculated for Dieldrin due to matrix interference from PCB components. No action was taken based solely on MS/MSD data. No results were qualified solely on MS/MSD results.

9. Laboratory Control Sample (LCS)

All LCS percent recoveries met QC guidelines (P-project, L-laboratory) except for the following compounds:

Sample	Compound	Percent Recovery	QC Limits
K980817-LCS	Aldrin	60	70-130 (P) 26-127 (L)
K980817-LCS	Dieldrin	60	70-130 (P) 18-161 (L)

Results for compounds listed above were qualified as estimated (J). Undetected analytes were also qualified as estimated (UJ)

10. Field Duplicate Analysis

No field duplicate samples were associated with this sample delivery group.

11. Second Column Confirmation

The relative percent difference (RPD) in reported analyte concentration was greater than 35 percent for the primary and confirmation column for the following samples:

Sample Number	Compound	DB-5 Conc.	DB-608 Conc	RPD
98334057	alpha-Chlordane	1 29	0 84	42
98334057	Endosulfan	1 67	ND	NA
98334057	DDT	ND	3.35	NA
98334057	Methoxychlor	5 87	ND	NA

Differences can arise from analytical interferences on one column. However, the relative percent differences are not deemed significant at the reported concentrations. The lower concentration was reported for each analyte.

12. Sample Analysis

A cursory review of raw data was performed. All laboratory deliverables were present and complete. The case narrative indicates that dieldrin recovery in the batch matrix spike and matrix spike duplicate was not calculated because of matrix interference. PCBs in the sample prevented accurate analyte quantitation. No other unusual problems were noted.

13. Laboratory Contact

No laboratory contact was required.

Data Assessment

Upon consideration of the data qualifications noted above, the data are ACCEPTABLE for use except where flagged with data qualifiers that modify the usefulness of the individual values

Data Qualifiers

U - The compound was analyzed for, but was not detected

UJ - The compound was analyzed for, but was not detected. The associated quantitation limit is an estimate because quality control criteria were not met.

J - The analyte was positively identified, but the associated numerical value is an estimated quantity because quality control criteria were not met or because concentrations reported are less then CRDL or lowest calibration standard.

R - Quality control indicates that data are unusable (compound may or may not be present). Resampling and reanalysis are necessary for verification.

N - Presumptive evidence of presence of material (tentative identification).

I - Elevated reporting limit due to matrix interference.

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Roy F Weston, Inc	**Service Request:**	K9805485
Project:	Duwamish River/4000-027-001-2019-38	**Date Collected:**	8/13/98
Sample Matrix:	Sediment	**Date Received:**	8/14/98

Organochlorine Pesticides

Sample Name	98334057	Units	ug/Kg (ppb)
Lab Code	K9805485-001	Basis	Dry
Test Notes			

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
alpha-BHC	EPA 3550A	8081A	1	1	8/17/98	8/22/98	ND	
beta-BHC	EPA 3550A	8081A	1	1	8/17/98	8/22/98	ND	
gamma-BHC (Lindane)	EPA 3550A	8081A	1	1	8/17/98	8/22/98	ND	
Heptachlor	EPA 3550A	8081A	1	1	8/17/98	8/22/98	ND	
Aldrin	EPA 3550A	8081A	1	1	8/17/98	8/22/98	ND 1UJ	
Heptachlor Epoxide	EPA 3550A	8081A	1	1	8/17/98	8/22/98	ND	
gamma-Chlordane	EPA 3550A	8081A	1	1	8/17/98	8/22/98	ND	
Endosulfan I	EPA 3550A	8081A	1	1	8/17/98	8/22/98	ND	
alpha-Chlordane	EPA 3550A	8081A	1	1	8/17/98	8/22/98	ND	
Dieldrin	EPA 3550A	8081A	2	1	8/17/98	8/22/98	ND 2UJ	
4,4'-DDE	EPA 3550A	8081A	2	1	8/17/98	8/22/98	ND 2UJ	B
Endrin	EPA 3550A	8081A	3	1	8/17/98	8/22/98	ND 3UJ	B
Endosulfan II	EPA 3550A	8081A	3	1	8/17/98	8/22/98	ND 3UJ	B
4,4'-DDD	EPA 3550A	8081A	2	1	8/17/98	8/22/98	ND	
Endrin Aldehyde	EPA 3550A	8081A	2	1	8/17/98	8/22/98	ND	
Endosulfan Sulfate	EPA 3550A	8081A	2	1	8/17/98	8/22/98	ND	
4,4'-DDT	EPA 3550A	8081A	2	1	8/17/98	8/22/98	ND	
Endrin Ketone	EPA 3550A	8081A	2	1	8/17/98	8/22/98	ND	
Methoxychlor	EPA 3550A	8081A	1	1	8/17/98	8/22/98	ND	
Toxaphene	EPA 3550A	8081A	10	1	8/17/98	8/22/98	ND	

B The MRL is elevated because of matrix interferences

MQT 11/1/98

Approved By Linda Neuneker Date 9-3-98

1S22/020597p